AMENDMENTS TO THE CLAIMS:

1. (currently amended) A sensing device comprising:

a vessel;

a plurality of sensor beads located within said vessel to form interstitial spaces therethrough, said plurality of sensor beads comprising at least two different types of beads, each of said types of beads being made of a material different from the material of any other of said types of beads; and

a plurality of biomolecules bound to at least a portion of said plurality of beads, each of said biomolecules having a fluorescent tag, said plurality of biomolecules comprising at least two different kinds of biomolecules, each of said different kinds of biomolecules being bound to a respective type of said at least two different types of sensor beads,

wherein said sensing device comprises at least two sensing regions, each of said sensing regions including one of said at least two different kinds of biomolecules.

2. (original) The sensing device of claim 1, wherein said vessel has a width of 250 μm to 500 μm.

3. (original) The sensing device of claim 1, wherein said vessel has a length of 0.5 cm to 3.0 cm.

4. (original) The sensing device of claim 1, wherein said vessel has a depth of 50 μm to 100 μm.

5. (currently amended) The sensing device of claim 1, wherein said vessel is provided with microfluidic channels and said plurality of beads [[are]] is located in said microfluidic channels in said vessel.

6. (original) The sensing device of claim 5, wherein said microfluidic

channels have a width of 10 μm to 500 μm.

7. (original) The sensing device of claim 1, wherein said microfluidic channels are comprised of optically transparent material.

8. (original) The sensing device of claim 7, wherein said optically transparent material comprises glass.

9. (original) The sensing device of claim 7, wherein said optically transparent material comprises quartz.

10. (original) The sensing device of claim 7, wherein said optically transparent material comprises a polymer.

11. (original) The sensing device of claim 10, wherein said polymer comprises poly(dimethylsiloxane).

12. (canceled)

13. (canceled)

14. (previously presented) The sensing device of claim 1, wherein each of said two different kinds of biomolecules includes a different fluorescent tag.

15. (canceled)

16. (currently amended) The sensing device of claim [[15]] 14, wherein said vessel includes obstructive features therein for preventing flow of said sensor beads between said at least two sensing regions.

17. (canceled)

18. (original) The sensing device of claim 1, further comprising spacer beads within said vessel.

19. (original) The sensing device of claim 1, wherein said sensing device further comprising foundation beads within said vessel.

20. (original) The sensing device of claim 19, wherein said foundation beads are comprised of glass or a metallic.

21. (original) The sensing device of claim 20, wherein said foundation beads have a diameter of 30 μm to 1000 μm.

22. (original) The sensing device of claim 1, wherein said vessel includes obstructive features therein for preventing said sensor beads from flowing along said vessel.

23. (previously presented) The sensing device of claim 22, wherein said obstructive features include neighboring obstructive features located 5 μm to 20 μm from each other.

24. (previously presented) The sensing device of claim 1, wherein said sensor beads are 0.1 μm to 1000 μm in diameter.

25. (original) The sensing device of claim 1, wherein said sensor beads are coated with at least one coating of said plurality of biomolecules.

26. (previously presented) The sensing device of claim 25, wherein bound biomolecules of said plurality of biomolecules are bound to said plurality of beads by biotin.

27. (original) The sensing device of claim 1, wherein said interstititial spaces each has a volume of 1 nL to 1000 nl.

28-53. (canceled)